ATIS NEWS

PLAN NOW FOR AGIC '99!
Sharing Knowledge And Data In The 21st Century

This year's annual AGIC conference promises to be an event you won't want to miss! The focus of this year's conference will be on issues facing the GIS community as we enter the next century.

The conference will bring together representatives from government, industry, and academia to exchange information as formal papers, poster displays, and product exhibition. A new aspect to the conference this year is that all papers selected for presentation will be published in conference proceedings on the internet and on CD-ROM. Another change to the conference from previous years is

that this year the conference will take on an international role with participants from neighboring states in Mexico.

The 1999 AGIC Conference is scheduled for August 8 – 10, 1999 in Tucson Arizona. The first day (yes, a Sunday!) is scheduled to be a day of pre-conference workshops. While final topics for the workshops have not been finalized, some tentative topics include:

- Rural Issues – What should we keep in mind when embarking on either new GIS implementations or using new techniques to upgrade our databases?

- Enterprise Applications – How do we handle the necessary mixture of computer operating systems and programs as GIS continues to grow?

- The Management Perspective – What are the issues related to managing a GIS operation?

- GIS Applications of the Future – What products, tools, and techniques might we expect in the coming years?

- GIS on the Web – What are the implications and issues associated with

INTERVIEW WITH THE STATE CARTOGRAPHER

The Arizona State Cartographers Office (SCO) is dedicated to the promotion and support of GIS projects in Arizona. The Office was established under the Arizona State Land Department in 1988, but the funding to implement this office was not appropriated. The Arizona Geographic Information Council (AGIC) worked diligently to get the Office funded. Finally, in 1996, Gene Trobia was hired as the Arizona State Cartographer.

To give you (our readers) an idea of what role he plays in the overall Arizona GIS community, we asked him to answer a few questions:

Q *What are your job responsibilities?*

A The State Cartographer's Office has three main areas of responsibility:

1. Establish GIS standards for geospatial databases

2. Promote and coordinate multi-participant GIS

projects that create geospatial databases

3. Improve access to geospatial databases

Q *What type of work experience led you to the State Cartographer's Office?*

A I have worked as a landscape architect utilizing mylar overlays on paper maps for site or rights-of-way analysis. This lead to a GIS internship with ALRIS, a GIS processing,

GET READY FOR AGIC '99! *(continued)*

(Continued from page 1)

web-based GIS?

• The Information System – Why we need to focus on the concept of information exchange

Remember, these are only tentative topics as of press time for this newsletter. Suggestions for workshop topics are welcome and encouraged via the AGIC Conference website at www.srnr. arizona.edu/agic. If you have a topic that you would like to see covered in a workshop, please be sure to contact the AGIC Conference planning committee at your earliest convenience!

Another unique aspect of the conference will be the keynote speakers. Randy Fusaro, Director of the TIGER Division for the US Census Bureau, will give a talk on "Shaping TIGER for the Future." With Census 2000 just around the cor-

ner, a preview of the geographic aspect of the Census can help all of us prepare for Census day as well as the analysis and planning that lies ahead after the data is collected.

It is anticipated that the second keynote speaker, though not yet confirmed, will be from Mexico. With the conference focusing on the sharing of data and knowledge, this second presentation looks to be a very welcome addition towards cross-border collaboration.

For additional and updated information on the AGIC '99 Conference, visit the conference website at:
www.srnr.arizona.edu/agic.

WE'RE GROWING!

If you've been to our offices lately, you may have noticed two "new" employees working on GIS projects: *Dutch Duering* and *Wayne Rich*.

Dutch has been with the Transportation Planning Group (TPG) for quite some time, but has recently been re-assigned to our area to assist with various GIS tasks. Dutch's extensive background in computers, both systems operations and hardware are a welcome contribution to our team!

Wayne is an ADOT "Return Retiree." He was on the original team that created the ATIS Roads coverage from the ALISS system and is a welcome asset to our team. He is in the office part time. His main duty will be to assist the consultants with the ATIS Roads update project.

STATE CARTOGRAPHER *(continued)*

(Continued from page 1)

user support and computer operations position with the State of Utah, and a GIS Manager/Director position establishing a GIS for Pima County. I also was the Manager of the Data Center and IS group at Pima County.

Q *What do you see as your biggest success thus far?*

A The biggest success so far is working cooperatively with the Arizona GIS community on projects to create metadata, establish an Arizona Clearinghouse Node, integrating cadastral data on a statewide level, bringing people together to establish a statewide street centerline database, and conducting several successful annual GIS projects.

Q *What do you envision for the future of GIS and related technology in Arizona?*

A The use of GIS and related technology, such as GPS and desktop mapping applications, will only increase in Arizona. Establishing basic GIS framework standards will allow more use of integrated databases. Web enabled GIS applications and easier to use applications will allow GIS to be better integrated to enterprise IS databases.

Q *What role do you play on a National*

Level?

A I am involved in the Federal Geographic Data Committee (FGDC) in several ways:

♦ FGDC Partners Program

♦ FGDC Grants Program

♦ FGDC Cadastral Standards Subcommittee

♦ FGDC Roads Model Standards Committee

I am also on the Board of the National States Geographic Information Council (NSGIC) and am active on several subcommittees including the Census working group.

Q *Do you only support Arizona State agencies or do your duties also allow you to give support to local governments or other entities as well?*

A While our focus is on State agencies, our office assists any group in the Arizona GIS Community. This includes activities with federal, state and local governments, the universities, utilities, private sector and several regional groups including the Colorado Plateau Consortia.

Q *Are you aware of any grants that may be available to benefit agencies (local or state) that are in the very early stages of developing a GIS program?*

A Yes. We are using FGDC grants now. We have a link on the AGIC website (http://www.land.state.az.us/agic/agichome.html) to FGDC and will be developing links to grant information and using our website for distributing information about grants. We research specific grants or funding opportunities for specific projects and that info is shared with project participants.

Q *Is there anything else you'd like to add to help our readers better understand the duties and responsibilities of your office?*

A The Office of the State Cartographer is a small office that depends on cooperation and coordination to accomplish its mission. We help others where possible to advance GIS And encourage the development of accessible geospatial databases. We try to represent and facilitate the mission and activities of the Arizona Geographic Information Council.

If you would like more information about the Arizona State Cartographer's Office contact Gene Trobia or the Assistant State Cartographer, Santiago Garcia, at (602) 542-4060.

REAL WORLD GIS

ARCVIEW AND "VISUAL INTELLIGENCE"
By Clifton R. Taylor, ADOT Natural Resources

A recent book, *Visual Intelligence*, by Donald D. Hoffmann, points out that almost half of the human brain is devoted to only one of the five senses, vision. We humans can understand and retain information best when it has a visual component, hence the emphasis on "visual aids" by teachers and trainers. In the Natural Resources Section, our move to ArcView has made an immense positive difference in how we do our work, when we do it and how we measure and track it. A list of digital data can overwhelm when it is used as a reference. Weeks later, it is vague at best, usually forgotten and/or meaningless without a visual component such as graphical interface. When it comes to spatial relationships, reams of data are by far the poorest means of understanding complex interactions.

In our push to quality and productivity, **rework** is the bugaboo we most strive to avoid. Follow-up reviews of seeding projects are a nightmare to plan with lists of site locations and seed lists, but are easy to plan for and remember when overlaid onto a milepost map. Even easier and quicker to evaluate when the finished project is photographed and 'hot-linked' to the map. These reviews are very important to our program because jobs that don't succeed result in blowing dust, shoulder drop-offs, rilling of slopes and siltation of culverts, among other undesired consequences.

Our noxious (and obnoxious) weed control program is faced with several species that are very deep-rooted, are capable of breaking up highway pavement and are an enormous threat to agriculture, ranching and recreation. Many are resistant to mechanical and cultural management practices and require us to use translocating herbicides in order to remove them. Several are resistant to the usual herbicides as well, so we use combinations of compounds for synergism. Before ArcView, we struggled along with data lists when trying to evaluate compounds against the various resistant species (with rather mediocre results.) These sites are now mapped, which requires only a quick

"The use of ArcView has allowed us to modify our spray routes in a way that is most cost-efficient and also sensitive to customer needs."

glance to understand proximity of locations for planning follow-up evaluations or a click of the mouse to understand the site topography, aspect and highway features.

The use of ArcView has allowed us to modify our spray routes in a way that is most cost-efficient and also sensitive to customer needs. An environmental and medical issue at present involves people who feel that they have Multiple Chemical Sensitivity (MCS), a condition not recognized by the American Medical Association nor the EPA. These folks are against the use of any chemicals by ADOT, including herbicides (and asphaltic oils in some cases) and are convinced that they are being poisoned by all man-made chemicals in the environment. With our GIS system, we can map application locations that permit alternate route for these folks to their doctors, grocery stores, etc. without traveling immediately behind an ADOT herbicide truck. Without getting into the "who's right?" argument on this issue, GIS allows ADOT to accommodate these citizens in a manner that permits both parties to cooperate in a mutually beneficial way.

The spatial data available is substantial, which means that users do not have to become gurus to build GIS documents from the ground up. The Transportation Planning Group at ADOT has a huge array of spatial databases and shape-

files, already prepared by Tony Gonzales and his unit, that are ready to be loaded as themes for a variety of GIS projects.

The highway milepost data, soil data, highway route data, traffic volume data and vegetation data are just a few of the many resources available. Additionally, the Arizona State Land Department, USGS, BLM and other federal and state agencies have spatial data available at little or no cost. Highway routes can be overlain onto topographic maps to get 3-D representations when that is needed, as it is with our prescribed fire plans. Many more uses become apparent as GIS is brought to bear on problems of logistics, planning, cost-cutting and quality.

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Clifton Taylor is the Section Manager for ADOT Natural Resources Management. He oversees the operations of all five "orgs" within the Natural Resources Management area.

If you have a REAL WORLD GIS story that you would like to share, here's your chance! Tell the world (okay, maybe just tell the ATIS News readers!) about your GIS trials and tribulations. We welcome articles from anyone involved in GIS.

Submit your REAL WORLD GIS story today and, if we print your story in the next issue of ATIS News, you will receive an official ESRI T-shirt! (The deadline for article submission to our Summer '99 issue is June 4, 1999, so don't delay!)

Send your article via email to Jami Garrison at Jgarrison@dot.state.az.us (Word, WordPerfect, or text files are fine). If you still have questions call Jami at (602) 712-8958.

ATIS ROADS UPDATE PROGRESS

In our continuing efforts to update the current ADOT base map for state and local roads (otherwise known as *ATIS Roads*) , a Request For Proposals (RFP) was sent out to seven (7) GIS consulting firms in late January.

The Request outlined various tasks in the Scope of Work focusing on issues that are needed in order to bring the ATIS Roads base map coverage up to date.   Some of the tasks outlined in the RFP were:

- Research and analyze the availability of street centerline data from all possible sources.

- Develop procedures to augment the ATIS Roads database with any newly acquired centerline data (both from outside sources and from gathered GPS data)

- Provide detailed documentation as well as quality control procedures on

all work performed under the contract.

- Evaluate the current ATIS Roads database, recommending any modifications that may be necessary with regard to current and potential future applications

- Develop detailed documentation on all applications within ADOT that are dependent on the ATIS Roads database including the use of tables and geocoding processes

- Develop procedures and software to allow ADOT staff to address and correct connectivity issues, specifically between ramps and mainlines.

- Provide recommendations for future uses of ATIS Roads. Specifically addressing the following topics:

  * statewide address ranges;

* state tourist map;

* truck routing system using GIS technology;

* Upgraded video log van

It is anticipated that the work under this contract will last twelve (12) months, with an additional year to complete the required updates.

This work is crucial to the continuing advancement of GIS in ADOT as well as other state and local governments. Once updated, the ATIS Roads database will be among the best available street centerline coverage for Arizona. For additional information on the ATIS Roads project, contact Tony Gonzales at (602) 712-7818 or via email at tgonzales@dot.state.az.us. ☻

UPCOMING CONFERENCES AND EVENTS

Give yourself an edge by attending a GIS conference. Conferences are a great way to network with other GIS users, catch up on the latest technology advances and expand your knowledge of GIS.

GIS User Group Meeting

Mark your calendar now to attend the next User Group meeting on April 21, 1999 at 1:00 p.m. at the ADOT Traffic Operations Center, 2302 West Durango St, Phoenix. Everyone is invited to attend. If you haven't seen the Traffic Operations Center (TOC) before, this is a great opportunity to see the high-tech traffic management system at TOC and, at the same time, get together with other GIS users to share ideas. For additional information call Jami at (602) 255-8958.

1999 Intermountain GIS Users Conference

Held in beautiful Idaho Falls, Idaho, this conference offers a lot of useful information and informative workshops. The conference is scheduled for April 19-21 with workshops on the day preceding and the day following the conference. There are scheduled to be seven (7) tracks as follows: 1) metadata; 2) education; 3) local government; 4) Native American; 5) Natural Resources; 6) New Technology/Applications; and 7) vendor presentations.   Additional information can be found online at http://www.ci.pocatello.id.us/gis/. Conference brochures are available from our office on request , call (602) 712-8958.

ESRI 19th Annual User Conference

Always a must! If you only attend one GIS conference this year, make it the ESRI Annual event! Scheduled for July 26-30, 1999 in San Diego, California. Get more information from the ESRI website at http://www.esri.com

AGIC '99

The 1999 Arizona Geographic Information Council (AGIC) conference is scheduled for August 8-10, 1999 at the Marriott University Park Hotel in Tucson, Arizona. See our cover story on this conference for additional information or visit the conference website at http://www.srnr.arizona.edu/agic.

URISA Annual Conference

The 1999 Urban and Regional Information Systems Association (URISA) conference will be held August 21-25 1999 in Chicago, Illinois. This event features hundreds of IT/GIS presentations, vendor demonstrations, URISA workshops, Chapter meetings, Committee meetings, and a technical vendor exposition. Additional information can be found on their website at http://www.urisa.org.

NACIS Annual Conference

The North American Cartographic Information Society (NACIS) is hosting its 19th annual conference October 20-23, 1999 in Williamsburg, Virginia. Watch their website at http://www.nacis.org for details. ☻

OPEN GIS CONSORTIUM SEEKS TO SHAPE THE FUTURE OF WEB MAPPING

*O*n March 8, the Open GIS Consortium took the next step in its Web Mapping Testbed (WMT) initiative, issuing a Request For Quotation and for participation in developing a demonstration of operating capability.

The WMT initiative is an effort on the part of the Open GIS Consortium to make progress toward a world where dispersed maps (in differing formats) from several physical servers (possibly running different map-serving software) can be assembled "on the fly" into a browser-based mapping and display capability.

Given the present variety of proprietary GIS data formats, and the widely differing approaches being taken by publishers of Internet Map serving software, this is indeed a daunting task. But the consortium has the participation of all of the GIS software industry heavyweights, along with very impressive research and academic collaborators. It includes Autodesk, GTE, Intergraph, MapInfo, Microsoft, Oracle, and SUN among its "Principal" level corporate sponsors. A full listing of the membership of the Open GIS Consortium is available here.

Sponsors of the Web Mapping Testbed initiative include the US Army Topographic Engineering Center, the National Imagery and Mapping Agency, the Australian WWW Mapping Consortium, the National Aeronautics and

Space Administration, and the Federal Geographic Data Committee. According to the Open GIS Consortium, the WMT "is intended to advance interoperable web mapping technology, support development of a multi-vendor portable demonstration, and feed requirements into OGC's OpenGIS Specification process."

The Open GIS Consortium sees the WMT as "a prime opportunity for vendors, users, and other interested parties to mutually define interface and protocols in the context of a hands-on engineering experience expected to shape the future of Web Mapping software development and Web data publication."

The new RFQ indicates the consortium will for the first time provide cost-sharing funds to offset participating vendor expenses (funds are available only to those who participated in the October 1998 RFT and who have received "targeted" RFQ letters; other interested parties are encouraged to participate but will not receive funding).The full text of the Request for Proposal is available in .pdf or Word format at http://www.opengis.org/wwwmap/webmaptestbed.htm#rfq.

- by Scott Elliott, Courtesy of Directions Magazine, http://www.directionsmag.com ☻

The OpenGIS Consortium (OGC) is a tax-exempt "membership corporation," whose mission is to promote the development and use of advanced open systems standards and techniques in the area of geoprocessing and related information technologies. OGC is supported by Consortium membership fees and, to a lesser extent, development partnerships and publicly funded cooperative programs. The group works to write and update the OpenGIS Specifications, building the standard interfaces that will enable digital geographic information and powerful geoprocessing capabilities to become part of everyone's information environment.

For more information visit their website at http://www.opengis.org ☻

TRAINING NEWS

HPMS Tools and ArcView

The final HPMS/ArcView training sessions were conducted in Phoenix this past February for local government employees. The training was designed to assist local governments with their annual submittal of Highway Performance Monitoring System (HPMS) data to ADOT. It is not known at this time whether the sessions will be offered again later this year or not. If you are interested in this training, contact Mark Catchpole at (602) 712-8596.

ArcView ESRI-Authorized Course

ADOT provides ESRI Authorized training four times a year at little or no cost for ADOT employees. Local government employees are also eligible to attend these classes through the Local Technical Assistance Program (LTAP) at a re-

1999 Authorized ArcView Classes

April 14-15

June 9-10

October 20-21

duced rate. If you are interested in attending any of the three remaining courses offered this year, contact Stephanie DeLeon of LTAP at (602) 255-8461.

Sorry, but we cannot allow any consultants or other private industry employees to enroll in the class. Non-government employees can find a list of Authorized Instructors on ESRI's website at http://www.esri.com.

New Authorized Instructor

Until now, Tony Gonzales had been the only ESRI Authorized Arcview instructor at ADOT. Due to the overwhelming demand for training and our increased workload with the upcoming ATIS Roads update project (among other things!) it became necessary to get another staff member authorized to teach ArcView. Jami Garrison has successfully completed the ESRI Authorized Teaching Program and will be teaching some of the upcoming ArcView classes.

We are also examining the possible addition of an Advanced ArcView course and/or Introduction to Avenue course. If you are interested in either of these courses, please let us know. (refer to the contact info on page 2).   ☻

CALCULATING LENGTH USING AN ARCVIEW SCRIPT

*A*rcView GIS comes with a lot of sample scripts and extensions. You can add a script to your project and create a button that will run the script. In this article we will learn how to add and use the sample script to calculate length (for line themes) or area and perimeter (for polygon themes).

Before you can add the script, check to see if the script **calcapl.ave** is in your sample scripts directory (usually in c:\esri \av_gis30\arcview\samples\script). If not, download it from user scripts area on the ESRI website at www.esri.com. In your ArcView project window, double-click on the script icon. A blank script document window will appear on your screen.

Adding the script:
From the **Script** menu select **Load Text** File. (or use the button on the button bar that looks like this:

In the **Load Script** dialog box, navigate to the directory where you saved the **calcapl.ave** script and find the file listed in the box on the left. Double click on the name to load the script.

Naming the script:
From the **Script** menu select **Properties**. The script properties dialog box will open. Change the name of the script to **View.CalcLength** and click OK.

Compile the script by pressing the button with the check mark on it:

Now close the script and return to your project window. Open a view (either an existing View or create a new one). Go to the button bar and double click anywhere along the bar area where there is not a button, like so:
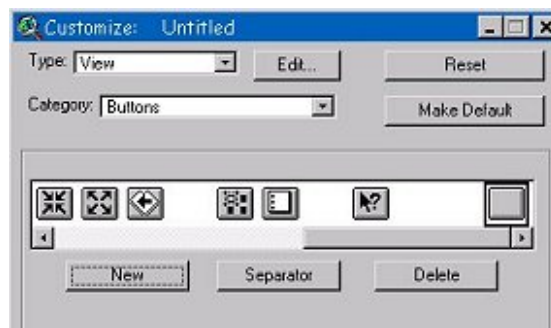
Double click here

The Customize dialog box will open. It will look like this:
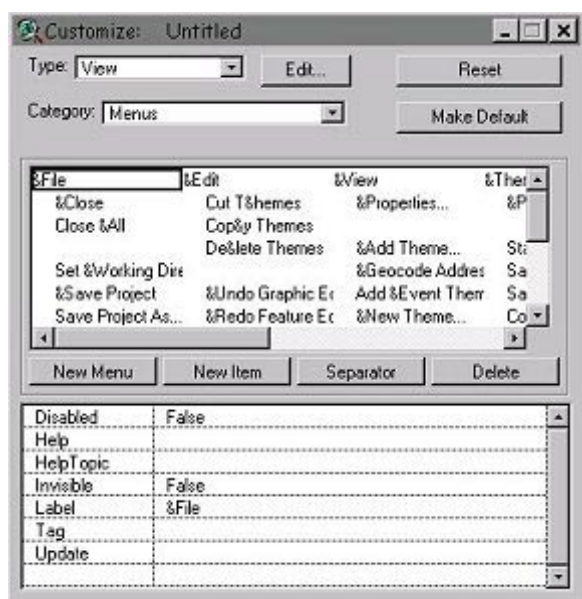
Be sure the **Type:** box is set to **View** (as in previous picture).

Use the scroll down menu in the **Category** box and select **Buttons**. Your GUI will change showing a box of buttons. In this box, scroll all the way to the right and click once on the help button (the button with an arrow and question mark). You should see a square around the button. Click twice on the **Separator** button (below this box of buttons) to add two spaces, then click once on the **New** button. A blank button should now be shown in the box of buttons and the top portion of your Customize box should now look like this:

Below this section is a box with various fields listed. The first row is labeled "Click." Double click on that row until the Script Manager dialog box pops up. From this dialog box, scroll down the list until you find the name of the script you created earlier (**View.CalcLength**, these are in alphabetical order). Double click on the name and it should now be in the field next to "Click." Skip the row labeled "Disabled."

Next, double click on the "Help" row. An empty dialog box will pop up. Type the following into the box, exactly as it is here: **Calculate Length//Adds the LENGTH field to the attribute table and calculates length**. This will create your help information when you put your cursor over the button (bubble help and status bar help). Click the OKAY button to add the infor-
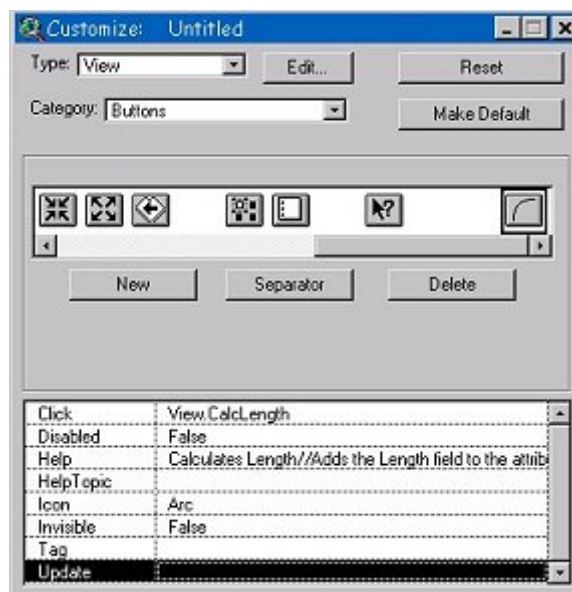
(Continued from page 6)
mation. Skip the next row and double click on the Icon row. The Icon Manager dialog box will pop up. Scroll through the list and select an appropriate icon of your choice for this button, then click okay. Your Customize dialog box should look like the one pictured on the bottom of the previous page, but with the icon you selected.

That's it. Close the Customize dialog box and you'll see your new button on your button bar, similar to the screen shot on the right. Save your project. This button will now be in every view you use in this project.

*The script will add the fields: **Area** and **Perimeter** to polygon themes, **Length** to line themes if they do not exist. If the fields exist their values will be recalculated. Rerun the script if you change the projection of the view. If the View has been projected the calculations are in projected meters. Otherwise the calculations are in 'native' map units.*
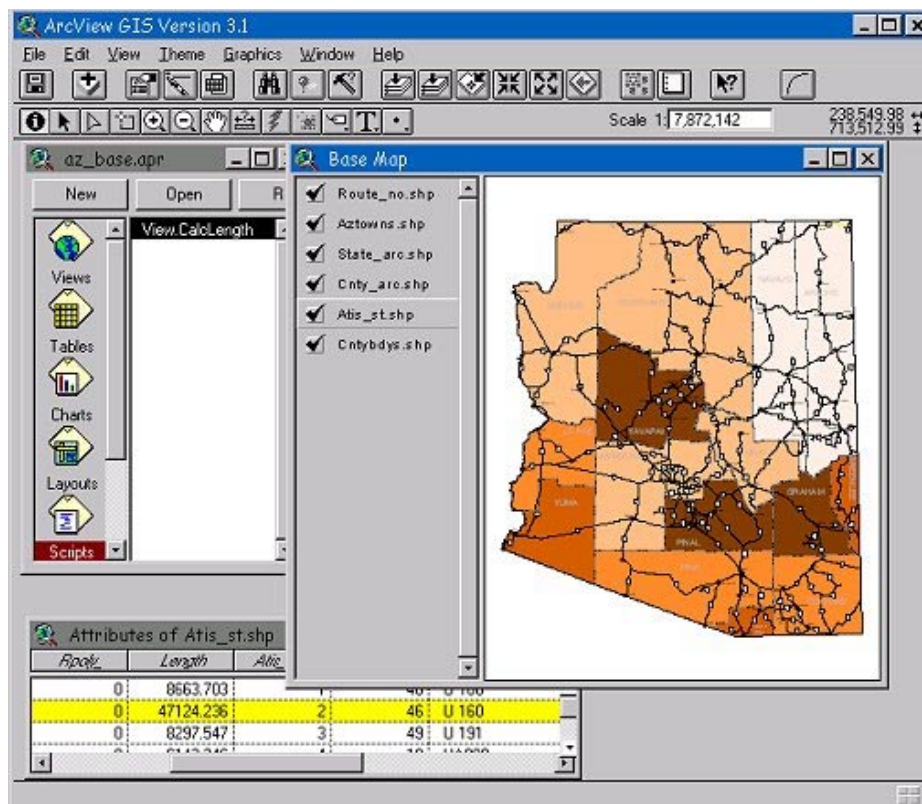
Pictured above: screen shot of ArcView project with new "add length" button.

WORTHY WEBSITES

CENTER FOR ADVANCED SPATIAL TECHNOLOGIES (CAST)
http://www.cast.uark.edu/main.html

From the University of Arkansas, Fayetteville, CAST focuses on research, technology transfer, data development, undergraduate and graduate education, service to communities and local governments, and professional training in GIS and related technologies. As part of its technology transfer mission, CAST publishes the NCRI Newsletter. The website has an extensive list of online resources, a digital data catalog, an interactive map maker and more.

NATIONAL ATLAS OF THE UNITED STATES
http://www.atlas-usgs.gov

From the USGS, the National Atlas is designed to promote greater geographic awareness through the development and delivery of products that provide easy to use, map-like views of our natural and socio-cultural landscapes. The National Atlas is being designed to serve the interests and needs of a diverse populace in many ways; as an essential reference; as a framework for information discovery; as an instrument of education; as an aid in research; and as an accurate and reliable source for scientific information. The website offers an interactive map that works in your browser (confirmed to work in versions 4.x or greater of both Netscape and Internet Explorer).

DIRECTIONS MAGAZINE
http://www.directionsmag.com

A wonderful online resource for mapping and demographic news. There is also an email newsletter you can subscribe to. The site offers articles, columns and press releases on events in the mapping and demographic industries.   There is also a development section where several projects, including an online data viewer, are being developed. Readers are encouraged to give feedback throughout the development process. This site is fairly new, but definitely worth a visit, as the information is continually updated and useful!

ATIS NEWS

YOU ARE INVITED! The Next GIS User Group Meeting will be held on Wednesday, April 21, 1999.   Mark your calendar now! The meeting will be held in Phoenix from 1:00 p.m. to 3:00 p.m. at ADOT's Traffic Operations Center, 2302 West Durango St, Phoenix. For more information contact Jami Garrison at (602) 255-8958 or email JGarrison@dot.state.az.us.